1985-10

CAB-O-SIL® DIVISION

CABOT CORPORATION P. O. BOX 188, TUSCOLA, ILLINOIS 61953

TELEPHONE AREA CODE 217
TUSCOLA 253-3370
TELEX TUSCOLA 910-663-2542

January 15, 1985

Lawrence W. Eastep
Manager, Permit Section
Division of Land Pollution Control
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Dear Mr. Eastep:

Cabot Corporation (0418080001) received permit No. 1984-1-IDE to develop a tank storage area for our acidic waste, prior to its underground injection. Cabot objected to the temperature requirements of condition #4 in my letter to you of December 5, 1984. Since that time I've had the opportunity to meet with Mr. Rama Chaturvedi of your staff and I believe we have settled the technical argument for a temperature restriction which is equal to the formation temperature. We therefore ask that condition #4 of the subject permit be amended to show an allowable injected waste temperature not over 112 degrees F. I have enclosed a copy of the chronological completion report for Cabot's #2 well which shows the bottom hole temperature of 112 degrees F at 5005 feet and pressure logs for the same well which show a temperature of 112 degrees F at a depth of 5200 feet.

Condition #7 of the referenced permit refers to the temperature of the stored liquid and sets a limit of 100 degrees F. In our discussion with Mr Chaturvedi we suggested that the material of tank construction, fiberglass reinforced plastic, is designed to hold hydrochloric acid at 180 degrees F. This temperature, however, will not be approached in the waste storage tank. We will nonetheless accept a temperature restriction slightly higher than that of the injected liquid. We believe the maximum temperature of the stored liquid should be 120 degrees F.

Condition #2 specifically states that this permit is for construction and development only. We assume an operating permit will be issued by the agency when construction is complete. Conditions # 3,5,6,8,9,11,12,13,14,15 are concerned with the operation of the facility. These should best be dealt with in the operating permit. Cabot Corporation's choice not to contest these conditions at this time does not preclude its right to contest these conditions in the operating permit.

Please contact me if you have any question or require further information on the foregoing application.

Sincerely,

Gabriel Paci
Manager, Environmental Affairs
CAB-O-SIL Division

CABOT #2 - DISPOSAL WELL
CHRONOLOGICAL COMPLETION REPORT - Page #2

12/15, 16/75 Attempt to run injection test - bad data due ~~to erroneous~~ pressure readings - static bottom hole temp. 112° at 5005 ft.

12/17/75 Ran Otis mech. caliper log 5002 ft. to surface - ran Dresser-Atlas Vertilog 4680 feet to surface.

12/18/75 Static fluid level 166.5 ft. below K.B. (fresh water in hole) - start to run 4½" Fibercast tubing - threads separated from 3 joints - shut down.

12/19/75 Pull 4½" tubing to return to Oklahoma - released Otis rig.

12/20/75 to 1/11/76 Shut down.

1/12/76 Static fluid level 166.15 ft. below K.B. (fresh water). Run injection test w/Dowell & Otis - pumped fresh water at 167 gpm, 284 gpm and 493 gpm for one hour each - ran pressure gradient in hole and left pressure bomb in hole overnite.

1/13/76 Pulled pressure recorder - see separate Otis report.

1/13, 19/76 Shut down.

1/19/76 Unloaded repaired and tested 4½" Fibercast tubing.

1/20/76 Rigged up L.Stone cable tool rig.

1/21, 23/76 Run 249 joints 4½" Fibercast tubing - land bottom at 5002 feet - land tubing hanger in head and seal w/positive hold down.

NOTE: Bottom Hole Pressure has been determined three ways on this well:

	BHP @ 5000 ft.	at 5200 ft.
1. Static fluid level at end of swabbing was 246 ft. Water in hole was 20,800 TDS. 20,800 TDS = 1.02 sp. gr. = .442 psi/ft.		
5000 - 246 = 4754 X .442 =	2102.3	
5200 - 246 = 4954 X .442 =		2189.7
2. Static fluid level at end of injection test with mostly fresh water in hole was 166 ft. Average pressure gradient determined by Otis was .435 psi/ft.		
5000 - 166 = 4834 X .435 =	2102.8	
5200 - 166 = 5034 X .435 =		2189.8
3. Otis bottom hole pressure bomb on 1/12/76	2102.0	2189.0

R. W. OBORN
CONSULTING ENGINEER

PRESSURE SURVEY

OTIS ENGINEERING CORPORATION
General Offices: Belt Line Rd. at Webb Chapel
P. O. Box 34380, Dallas, Texas 75234

COMPANY		MSO NUMBER	DATE RUN
Cabot Corporation			1/12/76
FIELD	**LEASE**	**WELL**	**SAND**
Plant	Plant	#2	
COUNTY OR PARISH		**STATE**	
Douglas		Illinois	

DESCRIPTION

ELEVATION	DATUM	PERFORATION			T.D.
16 AGL					
☐ SHUT-IN ☐ FLOWING — HOURS: —		FLUID LEVEL: 166'	DEPTH REACHED: 5200	TUBING PRESSURE: 0	☐ DWT ☒ GAUGE
SURFACE TEMP.: 30 °F	MAX. TEMP.: 112 °F	TUBING: — IN.	TUBING DEPTH: —	PACKER DEPTH: —	SLANT HOLE: NO

DEPTH OR TIME	PRESSURE PSIG	PRESSURE CHANGE	GRADIENT PSI / FT
0			
1,000	358	358	.358
2,000	796	438	.438
3,000	1233	437	.437
4,000	1667	434	.434
5,000	2102	435	.435
5,200	2189	87	.435

INSTRUMENT NUMBER: 26085

LAST CALIBRATION DATE: 1-9-75

PRESSURE SURVEY

DATE OF LAST SURVEY	LAST MAXIMUM	THIS MAXIMUM	CHANGE SINCE LAST SURVEY
—	—	—	—

CALCULATED BY: Troy D. Williams

REMARKS

1. Made above gradient stops while going in hole for pump test.

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PRESSURE SURVEY

OTIS ENGINEERING CORPORATION
General Offices: Belt Line Rd. at Webb Chapel
P. O. Box 34380, Dallas, Texas 75234

COMPANY		MSO NUMBER	DATE RUN
Cabot Corporation			1-12-76
FIELD	**LEASE**	**WELL**	**SAND**
Plant	Plant	#2	—
COUNTY OR PARISH		**STATE**	
Douglas		Illinois	

DESCRIPTION

ELEVATION	DATUM	PERFORMATION			T.D.
16 AGL					
☐ SHUT-IN ☐ FLOWING — HOURS: —		FLUID LEVEL: 166	DEPTH REACHED: 5200	TUBING PRESSURE: 0	☐ DWT ☒ GAUGE
SURFACE TEMP.: 30 °F	MAX. TEMP.: 112 °F	TUBING: — IN.	TUBING DEPTH: —	PACKER DEPTH: —	SLANT HOLE: NO

DEPTH OR TIME	PRESSURE PSIG	PRESSURE CHANGE	GRADIENT PSI / FT
	1st PUMP RATE (SEE REMARK #1)		
5200'	2189 PSIG	BHP at start of pump.	
5200	2191 PSIG	after pumping for 1 minute.	
5200	2191 PSIG	after pumping for 61 minutes.	
5200	2189 PSIG	after pump was stopped for 1 minute.	
5200'	2189 PSIG	after pump was stopped for 3 hours.	
	2nd PUMP RATE (SEE REMARK #2)		
5200'	2189 PSIG	BHP at start of pump.	
5200'	2191 PSIG	after pumping for 1 minute.	
5200'	2200 PSIG	after pumping for 3 minutes.	
5200'	2200 PSIG	after pumping for 61 minutes.	
5200'	2189 PSIG	after pump was stopped for 1 minute.	
5200	2189 PSIG	after pump was stopped for 3 hours.	

PRESSURE SURVEY

INSTRUMENT NUMBER	26085
LAST CALIBRATION DATE	1-9-76
DATE OF LAST SURVEY	—
LAST MAXIMUM	—
THIS MAXIMUM	—
CHANGE SINCE LAST SURVEY	—
CALCULATED BY	Troy D. Williams

REMARKS

1. 1st Pump Rate was 3.98 BBL/Min. or 167 gallons per minute-pumped 243 BBLS.
2. 2nd Pump Rate was 6.8 BBL/min. or 284 gallons per minute-pumped 413 BBLS.

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OTIS ENGINEERING CORPORATION
General Offices: Belt Line Rd. at Webb Chapel
P. O. Box 34380, Dallas, Texas 75234

PRESSURE SURVEY

COMPANY: Cabot Corporation		MSO NUMBER:	DATE RUN: 1-12-76
FIELD: Plant	LEASE: Plant	WELL: #2	SAND:
COUNTY OR PARISH: Douglas		STATE: Illinois	

DESCRIPTION

ELEVATION: 16 AGL	DATUM:	PERFORATION:			T.D.:
☐ SHUT-IN ☐ FLOWING HOURS: ----		FLUID LEVEL: 166'	DEPTH REACHED: 5200'	TUBING PRESSURE: 0	☐ DWT ☒ GAUGE
SURFACE TEMP.: 30F	MAX. TEMP.: 112 °F	TUBING: ---- IN.	TUBING DEPTH: ----	PACKER DEPTH: ----	SLANT HOLE: NO

DEPTH OR TIME	PRESSURE PSIG	PRESSURE CHANGE	GRADIENT PSI / FT
	3rd PUMP RATE (SEE REMARK #1)		
5200'	2189 PSIG	at start of pump test.	
5200'	2191 PSIG	after pumping for 1 minute.	
5200'	2200 PSIG	after pumping for 3 minutes.	
5200'	2220 PSIG	after pumping for 5 minutes.	
5200'	2220 PSIG	after pumping for 1 hour.	
5200'	2189 PSIG	after pump was stopped for 1 minute.	
5200'	2189 PSIG	after pump was stopped for 1 hour.	
5200	2189 PSIG	after pump was stopped for 12 hours.	
		(Continous Pressure Reading of 2189 PSIG for 12 hours after pump was stopped.)	

INSTRUMENT NUMBER: 26085
LAST CALIBRATION DATE: 1-9-76

PRESSURE SURVEY

DATE OF LAST SURVEY	----
LAST MAXIMUM	----
THIS MAXIMUM	----
CHANGE SINCE LAST SURVEY	----

CALCULATED BY: Troy D. Williams

REMARKS

1. 3rd Pump Rate was 11.7 BBLS./Minute or 493 gallons per minute-pumped 716 BBLS.
2. Pressure Recorder pulled 12 hours after pump was stopped.

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JAN 13 1976